JOHN M. COFFIN

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Education: 1967 B.A. Wesleyan University, Middletown, Connecticut (Biology)

1972 Ph.D. University of Wisconsin (Molecular Biology)

Advisor: Dr. H.M. Temin

Fields of Scientific Interest: Replication and evolution of retroviruses.

Professional Employment Experience:

1965-67 Research Assistant

Children's Cancer Research Foundation

Boston, Massachusetts

1967-72 Trainee

McArdle Laboratory for Cancer Research

University of Wisconsin, Madison, Wisconsin

1972-75 Postdoctoral Fellow

Institut für Molekularbiologie

Universität Zürich

Hönggerberg

8049 Zürich, Switzerland

1975-78 Assistant Professor

Molecular Biology and Microbiology

Tufts University School of Medicine

Boston, Massachusetts

1978-82 Associate Professor

Molecular Biology and Microbiology

Tufts University School of Medicine

Boston, Massachusetts

1982- Professor

Molecular Biology and Microbiology

Tufts University School of Medicine

Boston, Massachusetts

1. Distinguished Professor

Tufts University

Boston, Massachusetts

1985-93 American Cancer Society, Massachusetts

Division, Professor of Molecular Biology

Tufts University School of Medicine

Boston, Massachusetts

1994- American Cancer Society Research

Professor of Molecular Biology

Tufts University School of Medicine

Boston, Massachusetts

1997-2005 Director, HIV Drug Resistance Program

National Cancer Institute

Frederick, Maryland

HONORS AND SERVICE

Sigma XI

Fellow, Jane Coffin Childs Memorial Fund for Medical Research, 1972-74

Fellow, EMDO, 1974-75

Editorial Boards:

J. Virol. 1978-1991

Virology, 1980-1993, 2003-

Oncogene Res. 1987-1991

Oncogene, 1988-1992

Leukemia, 1990-1997

Genes and Development, 1991-1994

Proc. Natl. Acad. Sci. USA 2000-

Editor, Journal of Virology, 1991-1997

Virology Study Section, 1980-1984

Organizer, Cold Spring Harbor meeting on RNA Tumor Viruses, 1981, 1991, 1997

Frequent Ad Hoc reviewer for Cancer Center core and program project grants, etc.

Member, Retrovirus subsection, International Committee on the Taxonomy of Viruses, 1982-1987, Chair, 1987-95

Member, California AIDS Task Force, Basic Science Review Group, 1986-97, Chair 1993-97

Member, Leukemia Society of America, Grant Review Subcommittee, 1987-1991; 1992-2000

Chair 1997-2000

Member, Leukemia Society of America, National Board of Trustees, 1987-1991, 1992-

Member, National Cancer Institute Manpower Initial Review Group, 1987-1991

Outstanding Investigator Award, National Institutes of Health, 1987-1994; 1994-2001

Reviewing Editor, Science, 1987- 1996

American Society for Microbiology Foundation Lecturer, 1988-1989

Member, Institute of Medicine Committee to Study the AIDS Research Program of the NIH, 1989-1991

Milton and Natalie Zucker Award for Research, 1989, 1997

Rapporteur, VI International Conference on AIDS, 1990

Member, Advisory Board, Museum of Science Human Body Discovery Space 1990-1991

Member, ILAR Committee on Transgenic Nomenclature, National Academy of Sciences, 1991-1993

Member, Pediatric AIDS Foundation Ariel Project, Board of Scientific Councilors.

Member, National Cancer Institute-Frederick Cancer Research & Development Center Advisory Committee, 1993-, Chair, 1995-1997

Fellow, American Academy of Microbiology, 1993

American Cancer Society Research Professorship, 1994

Member, ACTG Scientific Advisory Board, 1995-1996

Member, Panel to Assess the NIH Investment in Gene Therapy, 1995

Member, Oversight Committee for the NIH AIDS Research Program, 1996

Distinguished Faculty Award, Tufts University, 1997

Member, National Academy of Science, 1999-

Member, NRC Committee on Concerns Associated with Animal Biotechnology, 2001-2002

Distinguished Professor, Tufts University, 2002

Fields Memorial Lecturer, Tenth Conference on Retroviruses and Opportunistic Infections, 2003

Distinguished Research Career Award, Center for Retrovirology, Ohio State University, 2003

Member Scientific Advisory Board, Aaron Diamond AIDS Research Center, 2003-

Member, CROI Program Committee, 2003-Present, Vice Chair, 2008-2010, Chair 2011-2012

Massachusetts Columbus Quincentennial Award, 2006

Fellow, Massachusetts Academy of Sciences, 2008

Gertrude Elion Memorial Lecture, HIV DART, 2010

Fellow, AAAS, 2014

JOHN M. COFFIN

PUBLICATIONS

Temin, H.M., S. Mizutani, and J.M. Coffin. 1971. DNA polymerases and other enzymes of RNA tumor viruses. Proc. 3rd Miami Winter Symposia. North Holland, Amsterdam. pp. 291-310.

Coffin, J.M. and H.M. Temin. 1971. Comparison of Rous sarcoma virus specific deoxyribonucleic acid polymerases in virions of Rous sarcoma virus and in Rous sarcoma virus-infected chicken cells. J. Virol. 7:625-634.

Coffin, J.M. 1971. Particles containing and RNA-directed polymerase system in cells infected with Rous sarcoma virus. Proceedings of the First Oak Ridge Symposium on Fetal Antigens and Cancer. pp. 151-162.

Coffin, J.M. and H.M. Temin. 1971. Ribonuclease-sensitive deoxyribonucleic acid polymerase activity with uninfected rat cells and in rat cells infected with Rous sarcoma virus. J. Virol. 9:766-775.

Coffin, J.M. 1972. Rescue of Rous sarcoma virus from Rous sarcoma virus-infected rat cells. J. Virol. 10:153-156.

Parsons, J.T., J.M. Coffin, R.K. Haroz, P.A. Bromley, and C. Weissmann. 1973. Quantitative determination and location of newly synthesized virus-specific ribonucleic acid in chicken cells infected with Rous sarcoma virus. J. Virol. 11:761-774.

Coffin, J.M., J.T. Parsons, L. Rymo, R.K. Haroz, and C. Weissmann. 1974. A new approach to the isolation of RNA-DNA hybrids and its application to the quantitative determination of labeled tumor virus RNA. J. Molec. Biol. 86:373-396.

Rymo, L., J.T. Parsons, J.M. Coffin and C. Weissmann. 1974. In vitro synthesis of Rous sarcoma virus RNA is catalyzed by a DNA-dependent RNA polymerase. Proc. Natl. Acad. Sci. U.S.A. 71:2782-2786.

Billeter, M.A., J.T. Parsons and J.M. Coffin. 1974. The nucleotide sequence complexity of avian tumor virus RNA. Proc. Natl. Acad. Sci. U.S.A. 71:3560-3564.

Weissmann, C., J.T. Parsons, J.M. Coffin, L. Rymo, M.A. Billeter, and H. Hofstetter. 1974. Studies on the structure and synthesis of Rous sarcoma virus RNA. Cold Spring Harbor Symp. Quant. Biol. 34:1043-1056.

Coffin, J.M. and M.A. Billeter. 1976. A physical map of the Rous sarcoma virus genome. J. Molec. Biol. 100:293-318.

Humphries, E.H. and J.M. Coffin. 1976. Rate of virus-specific RNA synthesis in synchronized chicken embryo fibroblasts infected with Rous sarcoma virus. J. Virol. 17:393-401.

Coffin, J.M. 1976. Genes responsible for transformation by avian RNA tumor viruses. Cancer Research 36:4282-4288.

Coffin, J.M. and W.A. Haseltine. 1977. Terminal redundancy and origin of replication of Rous sarcoma virus RNA. Proc. Natl. Acad. Sci. U.S.A. 74:1908-1912.

Pettersson, R., M. Hewlett, D. Baltimore, and J.M. Coffin. 1977. The genome of Uukuniemi virus consists of three unique RNA segments. Cell 11:51-63.

Clewly, J.P., D.H.L. Bishop, C-Y. Kang, J. Coffin, W.M. Schnitzlein, M.E. Reichmann, and R.E. Shope. 1977. Oligonucleotide fingerprints of RNA species obtained from rhabdoviruses belonging to the vesicular stomatitis virus subgroup. J. Virol. 23:152-166.

Coffin, J.M., M.A. Champion, and F. Chabot. 1978. Genome structure of avian RNA tumor viruses: Relationships between exogenous and endogenous viruses. In: Avian RNA Tumor Viruses (S. Barlatti and C. deGhiuli-Morghen, eds.). Piccin Medical Books, Padua. pp. 68-87.

Coffin, J.M. and W.A. Haseltine. 1978. Nucleotide sequence of Rous sarcoma virus RNA at the initiation site of DNA synthesis: The 102nd nucleotide is U. J. Molec. Biol. 117:805-814.

Coffin, J.M., T.C. Hageman, A. Maxam and W. Haseltine. 1978. Structure of the genome of Moloney murine leukemia virus: A terminally redundant sequence. Cell 13:761-773.

Shih, T.Y., H.A. Young, J.M. Coffin and E.M. Scolnick. 1978. Physical map of the Kirsten sarcoma virus genome as determined by fingerprinting RNase T1-resistant oligonucleotides. J. Virol. 25:238-252.

Shaikh, R., M. Linial, J.M. Coffin and R.E. Eisenman. 1978. Recombinant avian oncoviruses: I. alterations in precursor to internal structural proteins. Virology 87:326-338.

Haseltine, W.A. and J.M. Coffin. 1978. In vitro studies of the replication of Moloney murine leukemia virus. Cold Spring Harbor Symp. Quant. Biol. 43:841-849.

Coffin, J.M., M.A. Champion, and F. Chabot. 1978. Nucleotide sequence relationships between the genomes of an endogenous and exogenous avian tumor virus. J. Virol. 28:972-991.

Haseltine, W.A., J.M. Coffin and T.C. Hageman. 1979. Structure of products of the Moloney murine leukemia virus endogenous DNA polymerase reaction. J. Virol. 30:375-383.

Coffin, J.M. 1979. Structure, replication and recombination of retrovirus genomes: some unifying hypothesis. J. Gen. Virol. 42:1-26.

Tsichlis, P.N. and J.M. Coffin. 1979. Recombination between the defective component of an acute leukemia virus and Rous associated virus 0, an endogenous virus of chickens. Proc. Natl. Acad. Sci. U.S.A. 76:3001-3005.

Tsichlis, P.N., K.F. Conklin and J.M. Coffin. 1980. Mutant and recombinant avian retroviruses with extended host range. Proc. Natl. Acad. Sci. U.S.A. 77:536-540.

Tsichlis, P.N. and J.M. Coffin. 1980. Recombinants between endogenous and exogenous avian tumor viruses: Role of the c region and other portions of the genome in the control of replication and transformation. J. Virol. 33:238-249.

Coffin, J.M. 1980. Structural analysis of retrovirus genomes. In: Molecular Biology of RNA Tumor Viruses. (J.R. Stephenson, ed.). Academic Press, Inc., New York. pp. 199-243.

Tsichlis, P.N. and J.M. Coffin. 1980. Role of the c region in relative growth of endogenous and exogenous avian oncoviruses. Cold Spring Harbor Symp. Quant. Biol. 44:1123-1132.

Robinson, H.L., M.N. Pearson, D.W. DeSimone, P.N. Tsichlis and J.M. Coffin. 1980. Subgroup E avian leukosis virus-associated disease in chickens. Cold Spring Harbor Symp. Quant. Biol. 44:1133-1142.

Robinson, H.L., P.N. Tsichlis, and J.M. Coffin. 1980. Viral envelope genes and c regions in non-acute avian leukosis virus associated disease. In: Animal Virus Genetics (B. Fields, R. Jaenisch, and F. Fox, eds.). Academic Press, Inc., New York. pp. 443-453.

Robinson, H.L., M.N. Pearson, P.N. Tsichlis, and J.M. Coffin. 1980. Viral envelope antigens and c regions in non-acute leukosis virus associated disease. In: Viruses in Naturally Occuring Cancer, Cold Spring Harbor Press. pp. 543-551.

Coffin, J.M., P.N. Tsichlis, C.S. Barker and S. Voynow. 1980. Variation in avian retrovirus genomes. Ann. N.Y. Acad. Sci. 354:410-425.

Green, N., H. Hiai, J.H. Elder, R.S. Schwartz, R.H. Khiroya, C.Y. Thomas, P.N. Tsichlis, and J.M. Coffin. 1980. Expression of leukemogenic recombinant viruses associated with a recessive gene in HRS/J mice. J. Exp. Med. 152:249-264.

Eisenman, R., W.N. Burnette, P. Heater, F. Zucco, H. Diggelmann, P. Tsichlis, and J. Coffin. 1980. Synthesis and processing of the internal structural proteins of retroviruses: Site of synthesis, evidence for multiply-charged species, and analysis of a mutant defective in processing. In: Biosynthesis, Modification and Processing of Cellular and Viral Polyproteins. (G. Koch and D. Richter, eds.). Academic Press, Inc., New York. pp. 233-247.

Coffin, J.M., P.N. Tsichlis and H.L. Robinson. 1981. Genetics of leukemogenicity of avian leukosis viruses. In: Modern Trends in Human Leukemia IV. (R. Neth, ed.) Springer-Verlag, New York, New York. pp. 432-438.

Coffin, J.M., H.E. Varmus, J.M. Bishop, M. Essex, W.D. Hardy, G.S. Martin, N.E. Rosenberg, E.M. Scolnick, R.A. Weinberg, and P.K. Vogt. 1981. A proposal for naming host cell-derived inserts in retrovirus genomes. J. Virol. 40:953-957.

Robinson, H.L., B.M. Blais, P.N. Tsichlis, and J.M. Coffin. 1982. At least two regions of the viral genome determine the oncogenic potential of avian leukosis viruses. Proc. Natl. Acad. Sci. U.S.A. 79:1225-1229.

Conklin, K.F., J.M. Coffin, H.L. Robinson, M. Groudine, and R. Eisenman. 1982. Role of methylation in the induced and spontaneous expression of the avian endogenous virus ev-1: DNA structure and gene products. Mol. and Cell. Biol. 2:638-652.

Weiss, R., N. Teich, H.E. Varmus, and J.M. Coffin (eds.) 1982. Molecular Biology of Tumor Viruses, Part III: RNA Tumor Viruses. Cold Spring Harbor Press, Cold Spring Harbor, N.Y.

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Coffin, J.M. 1982. Endogenous Viruses. Chapter 10. In: Molecular Biology of Tumor Viruses. Part III: RNA Tumor Viruses. (R. Weiss, N. Teich, H.E. Varmus, and J.M. Coffin, eds.). Cold Spring Harbor Press, Cold Spring Harbor, N.Y. pp. 1109-1203.

Coffin, J.M., K.F. Conklin, P.N. Tsichlis, and H.L. Robinson. 1982. Genetic analysis of pathogenic and non-pathogenic avian retroviruses. In: Expression of Differentiated Functions in Cancer Cells. (R. Revoltella, G.M. Pontieri, C. Basilico, G. Rovera, R.C. Gallo, and J.H. Subak-Sharpe, eds.). Raven Press, New York. pp. 423-433.

Thomas, C.Y. and J.M. Coffin. 1982. Genetic alterations of RNA leukemia viruses associated with the development of spontaneous thymic leukemia in AKR/J mice. J. Virol. 43:416-426.

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Mermer, B., M. Malamy, and J.M. Coffin. 1983. Rous sarcoma virus contains sequences which permit expression of the gag gene in Escherichia coli. Mol. Cell. Biol. 3:1746-1758.

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Norton, P.N. and J.M. Coffin. 1985. Bacterial -galactosidase as a marker of Rous sarcoma virus gene expression and replication. Mol. Cell. Biol. 5:281-290.

Schaechter, M. and J.M. Coffin. 1985. Book Review. The Microbe, 1984. Science 227:158-159.

Voynow, S.L. and J.M. Coffin. 1985. Evolutionary variants of Rous sarcoma virus: Large deletion mutants do not result from homologous recombination. J. Virol. 55:67-78.

Voynow, S.L. and J.M. Coffin. 1985. Truncated gag-related proteins are produced by large deletion mutants of Rous sarcoma virus and form virus particles. J. Virol. 55:79-85.

Robinson, H.L., L. Jensen, and J.M. Coffin. 1985. Sequences outside of the LTR determine the lymphomagenic potential of Rous associated virus-1. J. Virol. 55:752-759.

Shank, P.R., P.J. Schatz, L.M. Jensen, P.N. Tsichlis, J.M. Coffin, and H.L. Robinson. 1985. Sequences in the gag-pol 5' env region of avian leukosis viruses confer the ability to induce osteopetrosis. Virology 145:94-104.

Coffin, J.M. 1985. Supplement to Chapter 4. Genome Structure. In: Molecular Biology of Tumor Viruses. Part III: RNA Tumor Viruses. (R. Weiss, N. Teich, H.E. Varmus, and J.M. Coffin, eds.). pp. 17-73. Cold Spring Harbor Press, Cold Spring Harbor, N.Y.

Stoye, J.P. and J.M. Coffin. 1985. Supplement to Chapter 10. Endogenous Viruses. In: Molecular Biology of Tumor Viruses. Part III: RNA Tumor Viruses. (R. Weiss, N. Teich, H.E. Varmus, and J.M. Coffin, eds.). pp. 357-404. Cold Spring Harbor Press, Cold Spring Harbor, N.Y.

Van Beveren, C., J. Coffin, and S. Hughes. 1985. Appendix. In: Molecular Biology of Tumor Viruses. Part III: RNA Tumor Viruses. (R. Weiss, N. Teich, H.E. Varmus, and J.M. Coffin, eds.). pp. 559-1221. Cold Spring Harbor Press, Cold Spring Harbor, N.Y.

Weiss, R., N. Teich, H.E. Varmus, and J.M. Coffin. 1985. Molecular Biology of Tumor Viruses. Part III: RNA Tumor Viruses. Second edition, two volumes. Cold Spring Harbor Press, Cold Spring Harbor, N.Y.

Dorner, A.J. and J.M. Coffin. 1986. Determinants for receptor interaction and cell killing on the avian retrovirus glycoprotein gp85. Cell 45: 365-374.

Coffin, J., A. Haase, J.A. Levy, L. Montagnier, S. Oroszlan, N. Teich, H. Temin, K. Toyoshima, H. Varmus, P. Vogt, and R. Weiss. 1986. Letter: Human Immunodeficiency Viruses. Science 232:697; Nature 321:10.

Coffin, J..M. 1986. Minireview: Genetic variation in AIDS viruses. Cell 46:1-4

Herman, S.A. and J.M. Coffin. 1986. Differential transcription from the long terminal repeats of integrated avian leukosis virus DNA. J. Virol. 60:497-505.

Norton, P.A. and J.M. Coffin. 1987. Characterization of Rous sarcoma virus sequences essential for viral gene expression. J. Virol. 61:1171-1179.

Herman, S.A. and J.M. Coffin. 1987. Efficient packaging of readthrough RNA in retroviruses: Implications for oncogene transduction. Science 236:845-848.

Mitrani, E., J. Coffin, H. Boedtker, and P. Doty. 1987. Rous sarcoma virus is integrated but not expressed in chicken early embryonic cells. Proc. Natl. Acad. Sci. 84:2781-2784.

Stoye, J. P., and J. M. Coffin. 1987. The four classes of endogenous murine leukemia virus: structural relationships and potential for recombination. J Virol 61:2659-2669. PMC 255766

Stoye, J.P. and J.M. Coffin. 1988. Polymorphism of murine endogenous proviruses revealed using virus class-specific oligonucleotide probes. J. Virol. 62:168-175.

Leis, J., D. Baltimore, J.M. Bishop, J. Coffin, E. Fleissner, S.P. Goff, S. Oroszlan, H. Robinson, A.M. Skalka, H.M. Temin, and V. Vogt. 1988. A standardized and simplified nomenclature for proteins common to all retroviruses. J. Virol. 62:1808-1809.

Shih, C-C., J.P. Stoye, and J.M. Coffin. 1988. Highly preferred targets for retrovirus integration. Cell 53: 531-537.

Stoye, J.P., S. Fenner, G.E. Greenoak, C. Moran, and J.M. Coffin. 1988. Role of endogenous viruses as mutagens: The hairless mutation of mice. Cell 54: 383-391.

Hopper, P. and J.M. Coffin. 1988. Inhibition of retroviral replication by antisense RNA expression. in Current Communications in Molecular Biology: Viral Vectors. (Y. Gluzman and S. Hughes, eds.) pp. 139-145

Coffin, J.M. 1989. Replication of retrovirus genomes. Chapter 1 in: RNA Genetics vol. II: Retroviruses, Viroids, and RNA Recombination (E. Domingo, J.J. Holland, and P. Ahlquist, eds.) pp. 3-22. CRC Press, Boca Raton, Fla.

16 Frankel, W.N., J.P. Stoye, B.A. Taylor, and J.M. Coffin. 1989. Genetic analysis of endogenous xenotropic murine leukemia viruses: Association with two common mouse mutations and the viral restriction locus *Fv-1*. J. Virol. 63: 1763-1774.

Swain, A., and J.M. Coffin. 1989 Polyadenylation at correct sites in genome RNA is not required for retrovirus replication or genome encapsidation. J. Virol 63: 3301-3306.

Frankel, W.N., J.P. Stoye, B.A. Taylor, and J.M. Coffin. 1989. Genetic identification of endogenous polytropic proviruses using recombinant inbred mice. J. Virol. 63: 3810-3821.

Coffin, J.M. 1989. Retroviridae and their replication. Chapter 51 in: Virology, 2nd edition. (Fields, B., Knipe, D., Chanock, R., Hirsch, M., Melnick, J., Monath, T. and Roizman, B., eds). Raven Press, New York.

Coffin, J. M., J.P. Stoye, and W.N. Frankel. 1989. Genetics of endogenous murine leukemia viruses. Ann. N.Y. Acad. Sci. 567: 39-49.

Frankel, W.N., J.P. Stoye, B.A. Taylor, and J.M. Coffin. 1990. A linkage map of endogenous murine leukemia proviruses. Genetics. 124: 221-236.

Coffin, J.M. 1990 Molecular mechanisms of nucleic acid integration. J. Med. Virol. 31: 43-49.

Lee, Y.M. and Coffin, J.M. 1990. Highly efficient autointegration of avian retrovirus DNA in vitro. J. Virol. 64: 5958-5965

Gerstein, R.M., W. N. Frankel, C.-L. Hsieh, J.M. Durdik, S. Rath, J.M. Coffin, A. Nisonoff, and E. Selsing. 1990. Isotype switching of an immunoglobulin heavy chain transgene occurs by DNA recombination between different chromosomes. Cell 63: 537-548

Coffin, J.M. and C. Moore. 1990. Determination of 3' end processing in retroelements. Trends in Genetics 69: 276-277.

Coffin, J.M. 1990. Genetic variation in retroviruses. In: Applied Virology Research: Volume 2. Virus Variability, Epidemiology, and Control (E. Kurstak, R.G. Marusyk, F.A. Murphy, and M.H.V. Van Regenmortel, eds.). pp 11-33. Plenum Press, New York.

Coffin, J.M. 1990. Genetic variation in avian retroviruses. Develop. Biol. Standard. 72: 123-132.

Coffin, J.M. 1990. The virology of AIDS: 1990. Aids 1990. 4 (suppl 1): S1-S8.

Stoye, J.P., C. Moroni, and J.M. Coffin. 1991. The virological events leading to spontaneous AKR thymomas. J. Virol. 65: 1273-1295

Lee, Y.M. and J.M. Coffin. 1991. Relationship of avian retrovirus DNA synthesis to integration in vitro. Mol. Cell. Biol. 11: 1419-1430

Frankel, W.N., C. Rudy, J.M. Coffin, and B.T Huber. 1991. Mls genes are linked to endogenous mammary tumor viruses of inbred mice. Nature 349: 526-528.

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Coffin, J.M., Stoye, J.P., and W.N. Frankel. 1991. Endogenous murine retroviruses and leukemia. Chapter 12 in: Viruses that Affect the Immune System. (Fan, H.Y., Chen, I.S.Y., Rosenberg, N., and Sugden, W., eds.) American Society for Microbiology, Washington. pp 175-191.

Coffin, J.M. 1991. Book Review. Virus Hunting: AIDS, Cancer, and the Human Retrovirus (by Robert Gallo). N. Engl. J. Med. 325: 665-666.

Stoye, J.P., W.N. Frankel, and J.M Coffin. 1991. DNA hybridization in dried gels with fragmented probes: An improvement over blotting techniques. Technique. 3: 123-128.

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Swain, A. and J.M. Coffin. 1992. Mechanism of transduction by retroviruses. Science 255: 841-845.

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